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ABSTRACT

This review surveys documents, previously announced in RIE, that are concerned with the (1) development of planning-programing-budgeting systems (PPBS) for educational planning, (2) models of PPBS implementation, (3) specific applications suitable for libraries, and (4) bibliographies available on the topic. PPBS decisionmaking models enable school administrators to identify objectives, delineate programs in order to achieve objectives, analyze alternatives, allocate resources over a period of time, and calculate costs and program effectiveness. (Author)

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# Planning-Programming-Budgeting Systems

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The constant change occurring in contemporary education produces a continuing search for ways to determine the needs and project the outcomes of educational programs. Through use of a simple decision-making model, the systems approach to planning assists in solving the complex problems created by educational change. A planning-programming-budgeting system (PPBS) is a major system-analytic technique enabling school administrators to identify objectives, delineate programs to achieve objectives, analyze alternatives, allocate resources over a specified period of time, and compare cost and effectiveness.

As PPBS has been adopted by government agencies as well as by educational organizations, the quantity of literature has greatly increased. This review focuses on literature that explains PPBS, discusses its utility for school systems, and describes specific models of PPBS that have been developed. All but two of the documents reviewed are available from the ERIC Document Reproduction Service in either microfiche or hard copy. Complete instructions for ordering these documents are given at the end of the review.

## EDUCATIONAL PLANNING AND PPBS

Eidell and Nagle (1970) report the Center for the Advanced Study of Educational Administration's (CASEA) current thinking about PPBS and data-based educational planning. In the introduction, the authors define PPBS and outline the usual conceptualization of PPBS. They also describe current pressure to adopt PPBS in public education as well as efforts to implement PPBS in schools. The second part deals with basic concepts of a systems model and provides a detailed explication of three interrelated models. In the third part these three systems models are related to PPBS refining the original conceptualization and providing a framework that is used for discussion, in part four, of innovative strategies for implementation of PPBS.

After summarizing the history of program budgeting as an extension and refinement of budgeting processes developed during the last half century, Keller (1968) investigates the theory, philosophy, and techniques of program budgeting, describes its conceptual framework, and lists procedures. The author explains the measurement of physical performance and discusses approaches to physical measurement. He also defines discounted cash flow and presents its applications to PPBS.

Hartley (1967) advises that economic analysis should be applied to school planning to provide a general framework within which educational objectives can be accomplished in the most reasonable manner. Systems analysis methods integrate the differing values of educators into common objectives. Successful use of program budgeting depends on a three-phase approach: (1) planning, structural design, and program definition; (2) programming, systems analysis, and budgeting; and (3) information support, evaluation, and program revision.

In an instructional outline for educators, The Center for Vocational and Technical Education (1969) includes concepts and techniques used by most federal agencies for resource allocation decision-making in rational and effective programming. Whereas traditional budgeting methods focus primarily on resource inputs, PPBS focuses on both inputs (costs) and outputs (benefits). The guidelines in this volume, using examples from the field of vocational education, suggest initial training in a sequential pattern for a course in PPBS. Sections in the outline include discussion of overview, systems theory, planning process, investment alternatives, program budgeting, analysis of alternatives, programming and management control, basic data for PPBS, and limitations of PPBS.

A second volume in this study dealing with PPBS for educators is a publication by McGivney and Nelson (1969a) involving a case problem designed for use by planning, budgeting, or administrative personnel in state or regional vocational educational organizations. The problem involves planning, programming, and budgeting, which is best accomplished in small group settings. Each small group should consist ideally of persons with a variety of duties and responsibilities. The faculty of the formal training institute that utilizes this material should be familiar with PPBS and the situational context of the participants. The problem is organized as eight sequential steps correlated with the first instructional outline. Included is the estimated time to complete each step. Each small group should have a calculator, an adding machine, a typewriter, a few basic references, and sufficient space to facilitate the work. Some secretarial services would

be desirable and duplicating facilities are necessary.

Tudor (1970) points out that PPBS has been considered as either synonymous with abstract, advanced, mathematical systems analysis or as an advanced accounting and control system. If PPBS is to perform a useful function, he suggests both viewpoints must be combined to require a number of standardized procedures and reports and to use advanced analytical techniques when needed for the attainment of excellence in planning, resource allocation, and operations management. A bibliography informs state agencies of the availability and wide scope of PPBS and its applications for new management technology in state planning.

## STUDIES CITE REASONS FOR UTILIZING PPBS

The Western New York School Study Council (1969) notes that many educational administrators are skeptical of school district attempts to use PPBS. In large part, this skepticism seems to be the result of two factors: a general lack of understanding of the concrete operational steps involved in the implementation of PPBS, and a feeling that the qualitative nature of educational objectives would inhibit the utility of such a tool in educational administration. A review of the guidelines issued by the Bureau of the Budget concerning PPBS implementation in federal agencies coupled with an analysis of PPBS staffing requirements should help the administrator understand the process of practical implementation. The study council indicates that the generally positive evaluation of PPBS made by administrators of such federal agencies as the United States Information Agency, the Agency for International Development, the State Department, and the Peace Corps serve as evidence of the utility of PPBS in organizational units faced with the difficulties of measuring qualitative objectives. The experience of these agencies may encourage school districts to experiment with PPBS.

According to Katzenbach (1968), continuous change in education is requiring educational administrators to plan for the distant future with as much precision as they presently do for the immediate future. Major advances in the planning-budgeting process are now available to educators in the form of PPBS. The author believes fiduciary budgets, which have been used in most schools since the early 1900s, have several inadequacies because they are incremental budgets relying heavily on what was done the previous year, and because they develop meaningless comparative data. Furthermore, fiduciary budgets do not reveal the source of funds, and are written only for the following year. Katzenbach believes that program budgeting, on the other hand, offers the administrator the opportunity to design a long-term plan for creative instruction. By aligning objectives and costs, PPBS delineates program integration and highlights alternatives in a new way. PPBS differs from present budgeting procedures in that it compels administrators to give some thought to alternatives and stresses the significance of minor costs over a long period of time. In addition, PPBS helps relate the cost of a program to its merits and links teacher aids, supporting activities, research, and development of subject matter in terms of time and cost.

Hartley (1968) explains that PPBS facilitates the kinds of information and data analysis that furnish administrators with a

basis for rational choice. PPBS, designed to foster economic efficiency, offers advantages over traditional practices: program-oriented information, analysis of possible alternative programs and objectives, long-range plans and evaluative criteria, use of contemporary management science concepts to improve utilization of teacher competence, structural flexibility and participatory planning, and report of school programs in the school budget document. Successful installation of the program budgeting format depends on completion of three kinds of research activities:

- program classification, structural design, and planning matrices
- programming, systems analysis, and budgeting
- information support, evaluation, and program revision

According to Hartley, the key to resolving recent educational disputes has been largely financial. Focus on programs would allow teachers, boards of education, administrators, and the general public to seek resources for needed programs rather than for selfish ends.

Mansergh (1969) states that PPBS provides the means to formulate more precise curricular objectives and to coordinate curricular-fiscal planning within education. The core of PPBS is the program budget that reports programs to be accomplished and allocates expenditures in terms of objectives relating to student achievement rather than in terms of objects to be purchased. Basic approaches to program structure include: subject matter, based on curricular programs; grade level, reflecting grade level groupings; operating unit, focusing on individual schools; and a hybrid approach combining the first two approaches. According to Mansergh, the movement from planning to programming, the first phase of PPBS, should include a clear statement of the school district's philosophy, a definite program format, and educational objectives. The output of the first phase consists of dollar figures for both a program's expenditures and benefits. With verification of these estimates and figures on total revenues, information is provided about the feasibility of all programs. The second phase concerns the transition from programming to budgeting.

## SCHOOL STUDY DESIGNS FOR PPBS MODELS

The California State Department of Education (1969) presents a conceptual design for a PPBS developed to assist California school districts in achieving a more effective and efficient utilization of available resources—money, manpower, and materials. The design provides the information necessary to plan educational programs meeting the needs of the community, and to choose among alternative resource allocations achieving goals and objectives. Outlined in the manual are the means for systematically analyzing district needs to determine the most effective allocation of available resources, and for assessing the accomplishment of state and district objectives.

As part of the Western New York PPBS Project and at the request of the Maryvale Central School District, the Department of Educational Administration at the State University of New York at Buffalo (1970) developed a model for implementing PPBS in districts of fewer than twenty-five thousand students. The completed model consists of three components: planning, programming, and budgeting. This docu-

ment reports on the four elements in the programming component. The experiences of the study group in developing these components are summarized in suggestions and recommendations for school systems undertaking the development of a PPB system.

A study by the Government Studies Center at the University of Pennsylvania (1968) is intended to develop management tools for use by the administrations and boards of intermediate units. Specifically, the study includes the design, testing, and initial implementation of a PPBS. The system will facilitate a coordinated effort in providing educational services by the local districts and by the intermediate units. This report presents a general design of the PPBS that was tested by the project staff, pilot districts, and county offices.

The Western New York School Development Council (1969) discusses the conceptual problems of developing an administrative planning system for local school districts. The levels of planning and organization of a PPBS model are:

1. system planning at the political or community level, involving the community and the school district
2. system planning at the operational level, encompassing the school system as a whole
3. subsystem planning utilizing individual teachers in preparing specific objectives

At the political level, system planning is primarily an explanation of the community's long-range goals for education. At the operational level, system planning involves a statement of more explicit objectives and the setting of target dates. To meet quantitatively stated objectives within a precisely defined time span, subsystem planning incorporates actual subject area programs and program elements.

In a paper discussing the statewide approach of the PPBS developed by the California State Department of Education, Waters (1971) reports that California is introducing the system in all its public schools. Specific goals for the management of the school system must be identified, and functional areas subdivided into manageable units. Waters believes the use of program budgeting assures uniform accounting and a better relationship among schools, community members, and state agencies.

Scamman (1971) suggests a two-phase implementation of a PPBS for the Kenosha, Wisconsin, schools: (1) an experimental program-oriented budget covering one school year, and (2) a five-year plan to reevaluate and develop a program structure and program goals. The author emphasizes the accounting and information processing needs of the Kenosha district. According to Scamman, the lack of guidance and assistance from national and state levels is the major implementation difficulty.

## LIBRARIES INVESTIGATE USE OF PPBS

Spencer (1968) explains that the use of PPBS in libraries involves the introduction of three major operational concepts: the development of an analytical capability to examine in depth both agency objectives and the various programs to meet these objectives; the formation of a five-year planning and programming process combined with a sophisticated management information system; and the creation of an improved budgeting mechanism that can take broad program decisions, translate them into refined budgetary decisions, and present the results for action. In this way, broad goals are reduced to specific program operations and the most economical me-

thods of carrying them out are identified. To accomplish this task, the following four major steps are needed:

- identify library goals
- relate broad goals to specific programs
- relate programs to resource requirements
- relate resource inputs to budget dollars

Sixteen budgeting forms are presented ranging from conventional accounting or fiduciary budgets to semiconventional and program budgets.

Bromberg (1971) presents a basic description of PPBS and how it can be utilized by the practicing librarian. The author sees PPBS as a system of relating planning to budgeting by analyzing what is being done in the light of what should be done (including projections for the future), and then by relating the analysis to the standard yearly budget. Emphasis is on clearly defined program objectives.

Discussing the importance of planning-programming-budgeting to libraries, Fazar (1968) observes that interest in the adoption of PPBS has spread beyond the federal government and now includes the library community. The author hopes that his presentation will help librarians to visualize the potential usefulness of PPBS in more effective decision-making and will encourage librarians to explore PPBS training, development, and application as appropriate.

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An annotated bibliography by McGivney and Nelson (1969b) offers seventy citations relevant to PPBS with emphasis on the period from 1965 to 1968. Listings are arranged alphabetically by author under the following general divisions: overview of PPBS, systems and administrative theory, planning process, program budgeting and management control, identification and analysis of investment alternatives, education and economics, data and statistical analysis, and limitations of PPBS.

In a related document, a bibliography by Nelson (1970) is intended to assist students, researchers, and practitioners in identifying references in specific areas of PPBS. Emphasizing the 1963-1969 period, the bibliography cites 1,051 sources in the following categories: systems theory, planning and control systems, planning process, program budgeting and programming, management control, investment alternatives, analysis of alternatives, education and economics, basic data for PPBS, statistical analysis in PPBS, limitations of PPBS, and bibliographies.

Piele and Bunting (1969) review the research findings of recent doctoral dissertations on program budgeting in education and describe the practical applications of these findings for school administration. Organized in nine chapters, the introductory chapter illustrates the basic principles of program budgeting. Other chapters include specific examples of the use of program budgeting in comparing, allocating, and planning the costs of educational objectives. The authors discuss the problems and shortcomings associated with both traditional and program budgeting.

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**Abstracts of the following documents can be located in *Research in Education*. The complete texts are available from the ERIC Document Reproduction Service (EDRS), commercial channels, or both. Publications can be ordered in either facsimile paper copy form or microfiche.**

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**Address requests to** ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014.

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